IS THE HOUSEFLY BEING REPLACED BY OTHER DIPTERA AS THE MAJOR INSECT PEST OF FOOD MARKETS?

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There is a general belief that the common house fly, *Musca domestica* L. is the most important insect pest occurring in food, fruit, and meat markets and similar situations where foods are handled in quantity.

For the past three years observations have been made in food markets in many towns and cities in Ohio, New York, Pennsylvania, West Virginia, and Illinois which have indicated that other species of flies are the dominant types and that the house fly is, in most cases, a lesser problem because of its numbers, habits, and appearance.

TABLE 1

Distribution of three species of flies in sample areas in Ohio.

Location	Date	*Phaenicia sericata*	*Phormia regina*	*Musca domestica*	Total Number
			(percent)		
Kenton	7–21	54.1	22.1	23.8	122
Springfield	7–21	64.3	0	35.7	115
Columbus	7–23	50.0	3.8	46.2	52
Springfield	7–25	51.6	3.1	45.3	128
Youngstown	8–3	93.4	0.8	5.8	258
Columbus	8–16	54.5	1.7	43.8	121
Ravenna	8–21	88.6	8.7	2.7	184
Logan	8–23	70.0	12.0	18.0	50
Xenia	8–30	51.1	10.2	38.7	532
Logan	9–5	86.8	6.8	6.4	220
Akron	9–5	87.1	2.0	10.9	101
Geneva	9–6	76.5	0.8	22.7	238
Wooster	9–13	48.7	3.7	47.6	433
Wadsworth	9–13	76.2	0.3	23.5	264
New Lexington	9–18	42.5	1.1	56.4	94
Zanesville	9–19	67.9	0.9	31.1	106
Average percentage		66.1	5.0	28.9	
Total number					3018

During the summer of 1951 quantitative samples were secured from sixteen towns and cities widely distributed over Ohio. The samples were taken by gathering together all of the recently killed insects, following insecticidal treatment, which had accumulated on the broad, show window ledge inside the building. This method of obtaining the samples was used because it was observed that during, and immediately after fog applications of an insecticide, all the flies flew to the large windows in the front of the stores attempting to escape, and died there. Few dead flies could be found in other locations in the buildings. The data cited below are indicative of the general situation in the area studied (table 1).

Sixteen samples in all were counted containing 3018 flies belonging to three species. Of these 1994 or 66.1 percent were *Phaenicia sericata* (Meigen), the green-bottle fly belonging to the family Caliphoridae; 873 or 28.9 percent were

Musca domestica L., the common house fly belonging to the family Muscidae; and 151 or 5.0 percent were *Phormia regina* (Meigen), the black blowfly belonging also to the family Caliphoridae.

Only samples containing 50 or more specimens are included in the data. In table 1, it will be noted that only one sample which was taken at New Lexington, Ohio, on September 18 contained houseflies in excess of 50 percent; only four others of the 16 listed approached 50 percent. The remaining 12 samples contain less than 39 percent of houseflies and four of these contains less than 12 percent.

On the other hand 14 of the 16 samples show that *Phaenicia sericata* is the predominant species with 50 percent or more individuals of this fly in each sample. One sample contained more than 93 percent of this species and 8 samples contained more than 70 percent of *P. sericata.*

The third species of importance is *Phormia regina* which is represented by comparatively smaller numbers. In one case a sample taken at Kenton, Ohio, on July 21 showed 22 percent of the total number to be *P. regina.* In two other samples, Logan, Ohio, August 23 and Xenia, Ohio, August 30, *P. regina* was represented by 10 percent or more of the total number of individuals.

Not only because of their numbers but because both *Phaenicia sericata* and *Phormia regina* are larger, and more strikingly colored than the house fly, and because of their strong attraction to meat where they may be seen to deposit their eggs, they are a much greater and more offensive pest and public health menace than the common housefly.

It would appear that the relative abundance of these three species should be taken into consideration in the research and formulation of fly control methods for restaurants and food markets in the future instead of considering the house fly alone.